LG Vacuum Interrupters

- Ratings and Specifications
- Outline Dimensions
- Structure
- Features

Index

LG
New Face of GoldStar

TÜV CERT ISO 9001

Vacuum Interrupters

LG Industrial Systems Co., Ltd.

RATINGS AND SPECIFICATIONS

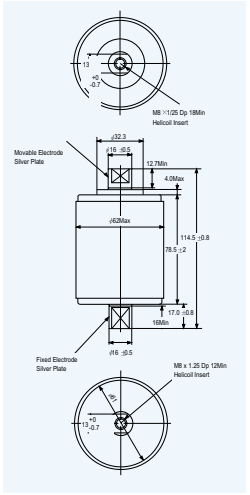
TYPE		■ LV-07040	LV-07080B	LV-07130	LV-07201	LV-07251	LV-07252	LV-07312	LV-07403A(B)	LV-24121	LV-24252	LV-25313
Outer View												
Electrical Ratings	Rated Voltage (kV)	3.6 / 7.2	7.2	7.2	7.2	7.2 / 12 / 15	7.2 / 12 / 15	7.2 / 12 / 15 / 17.5	7.2 / 12 / 15 / 17.5	24	24 / 25.8	24 / 25.8
	Rated Power Frequency Withstand Voltage (kV, rms)	11.5 / 20	20	20	20	20 / 28 / 36	20 / 28 / 36	20 / 28 / 36 / 50	20 / 28 / 36 / 50	50	50	50
	Rated Impulse Withstand Voltage (kV, crest)	60	60	60	60	60 / 95	60 / 95	60 / 95	60 / 95	125	125	125
	Rated Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
	Rated Normal Current (Amp)	400	630	630	1,250	1,250	2,000	2,000	3,150	1,250	2,000	3,150
	Rated Short Circuit Current (Sym.) (kA)	4.5	8	12.5	20	25 / 20	25	31.5	40	12.5	25	31.5
	Rated Short Circuit Making Current (kA, peak)		20	32	50	63 / 50	63	79	100	32	62.5	79
	Rated Duration of Short-Circuit (sec)		3.0	3	3	3	3	3	3	3	3	3
Mechanical Data	Interrupter Weight (kg)	0.48	0.83	0.85	1.8	1.9	3.9	4.0	6.05	2.6	4.9	6.10
	Moving Part Weight (kg)	0.19	0.4	0.4	0.6	0.7	0.84	0.9	1.7	0.62	1.0	1.7
	Outline Dimension (mm) a	114	132	132	209	209	230	230	247 (272)	246	270	272
	Outline Dimension (mm) b	78	89	102	152	169	181	181	213	173.5	225	213
	Outline Dimension (mm) c	62	62	62	79	79	103	103	135	95	103	135
Mechanical Requirements	Contact Stroke (mm)	3.0 / 5.0	6	6	8	8 / 12	8 / 10	8 / 12	8 / 12	17	17	17
	Opening Speed, Average 0 to 90% of Full Stroke (m/s)	0.6	0.7~1.0	0.7~1.0	0.7~1.0	1.0 / 1.0~1.3	0.7~1.0 / 1.0~1.3	0.7~1.0 / 1.0~1.3 / 1.2~1.6	0.7~1.0 / 1.0 / 1.2	1.0~1.3	1.0~1.3	1.0~1.3
	Overtravel During Opening, Max. (mm)	1	2.0	2	2	2	2 / 1.5	3	3 / 1.5	2	1.5	1.5
	Closing Speed, Average Last 20% of Full Stroke (m/s)	0.3	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	0.7~1.0	1.0~1.3
	Contact Bounce Duration, Max. (sec)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Added Force from Atmospheric Pressure (kg • f)	5	50	80	154	227 / 154	227	306	367	80	227	306
	Contact Force from Atmospheric Pressure (kg • f)	9.0	9.1	9.1	15.9	15.9	16.8	16.8	26	15.9	16.8	25
	Contact Erosion Limit (mm)	1	3	3	3	3	3	3	3	3	3	3
	Mechanical Life (Operations)	5,000,000	30,000	30,000	30,000	30,000 / 10,000	50,000 / 30,000	50,000 / 30,000 / 10,000	50,000 / 20,000	10,000	10,000	10,000

■ LV-07040 is useful only in vacuum contactors.

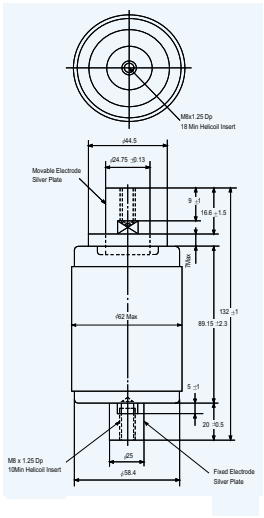
Contents Index

OUTLINE DIMENSIONS

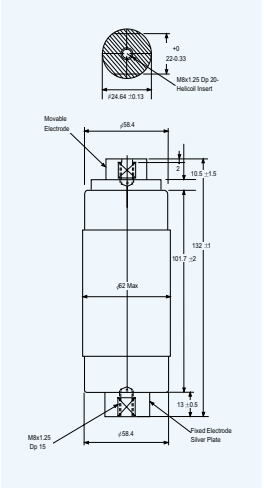
LV-07040



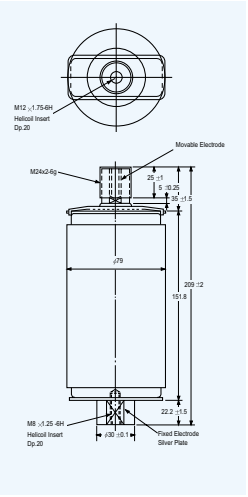
LV-07080B



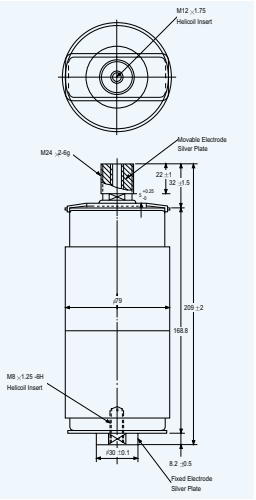
LV-07130



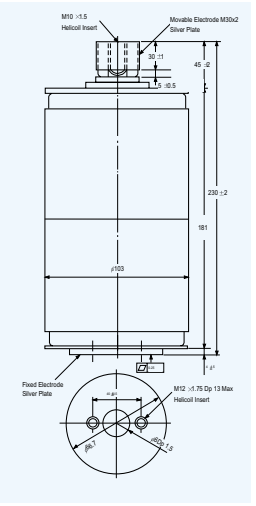
LV-07201



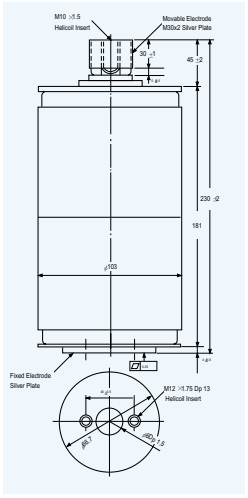
LV-07251



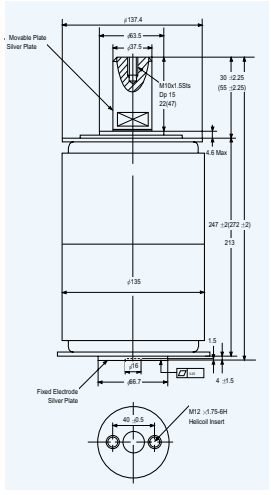
LV-07252



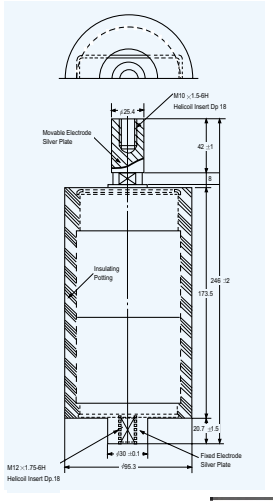
LV-07312



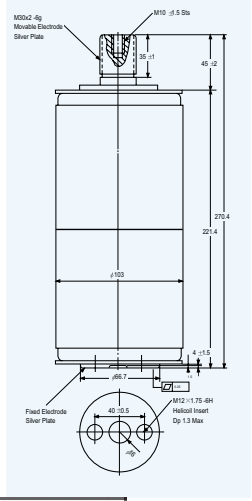
LV-07403A(B)



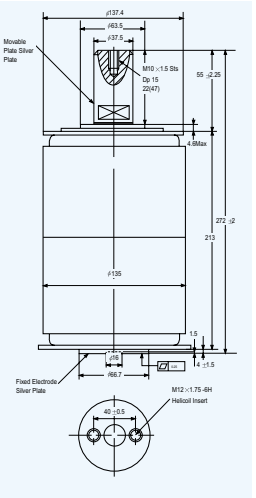
LV-24121



LV-24252



LV-25313



Ordering Information

LV 07 08 0

Basic Type
L : LG
V : Vacuum Interrupter

Rated Voltage
07 : 7.2kV
12kV
15kV
24 : 24kV

Ampere
0 : Below 630A
1 : 1250A
2 : 2000A
3 : 3150A

Rated Short Circuit Current
04 : 4.5kA
08 : 8kA
12 : 12.5kA
20 : 20kA
25 : 25kA
31 : 31.5kA
40 : 40kA

Contents Index

STRUCTURE

The internal components of a typical vacuum Interrupter are shown in Figure1. LG Vacuum Interrupter consists of a ceramic insulator, two end plates, arc shield, bellows, a movable and fixed electrode, and contact set.

The ambient gas pressure within the evacuated tube is approximately 10^{-6} torr.

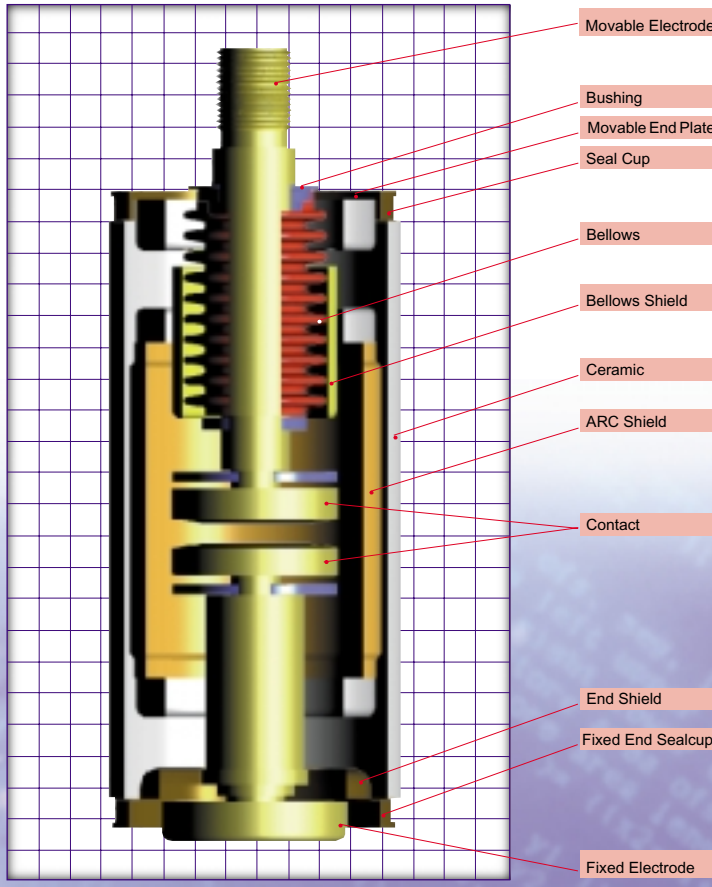


Figure 1. Vacuum Interrupter Schematic

Contents Index

FEATURES

- **Small Size and Light Weight**
- **High performance, reliability, and long life are assured.**
- **Maintains High Vacuum**
- **High-alumina ceramics provide superior mechanical strength and easy degassing.**
- **High speed interruption and short arcing time.**
- **The LG Vacuum Interrupter can meet all IEC, ANSI and NEMA performance standards.**

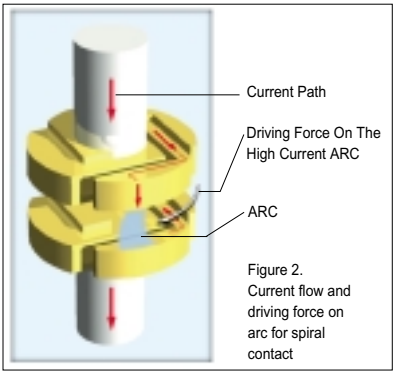


Figure 2. Current flow and driving force on arc for spiral contact

- *In the closed position, normal current flows through the interrupter. When a fault occurs and interruption is required, the contacts are quickly separated. The arc drawn between the surfaces of contacts is rapidly moved around the slotted contact surface by self-induced magnetic effects, preventing gross contact erosion and the formation of hot spot on the surface. The arc burns in an ionized metal vapor, which condenses on the surrounding metal shield. At current zero the arc extinguishes and vapor production ceases. The metal vapor plasma is very rapidly dispersed, cooled, recombined, and deionized, and the metal vapor products are quickly condensed so that the contacts withstand the transient recovery voltage.*

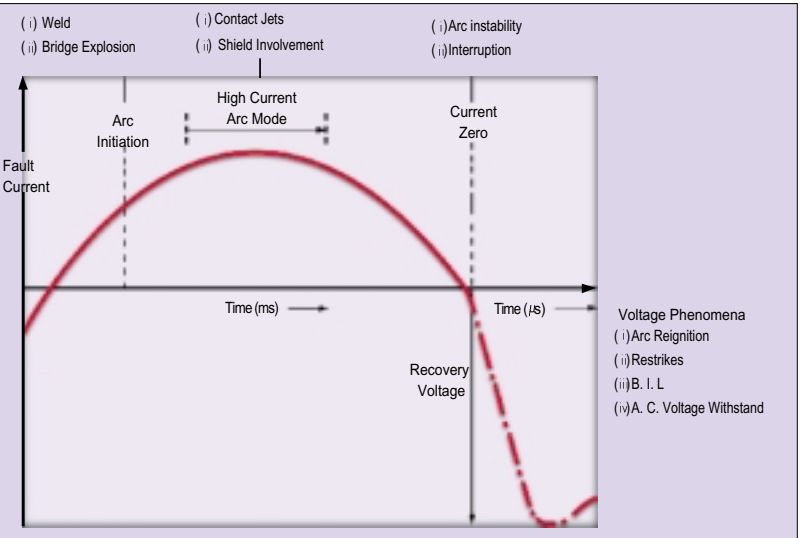


Figure 3. AC arcing and interruption phenomena in vacuum.

Contents Index

MAIN PRODUCTS

- Molded Case Circuit Breaker
- Miniature Circuit Breaker
- Earth Leakage Circuit Breaker
- Distribution Panelboard
- Magnetic Switch & Contactor
- Air Circuit Breaker
- Vacuum Circuit Breaker

LG constantly endeavors to improve our products, so that information in this catalog is subject to change without notice.

LG Industrial Systems Co., Ltd.

■ **HEAD OFFICE**
LG Mullae Building 10, Mullae-dong, 6-ga, Youngdungpo-gu, Seoul 150-096, Korea
TEL:(82)02-2006-3203~3215 Fax:(82)02-2006-3910

■ **E-mail address: sungokp@ lgis.lg.co.kr**

■ **http://www.lgis.lg.co.kr**

VI 2000/MAY. 1999 Printed in Korea STAFF